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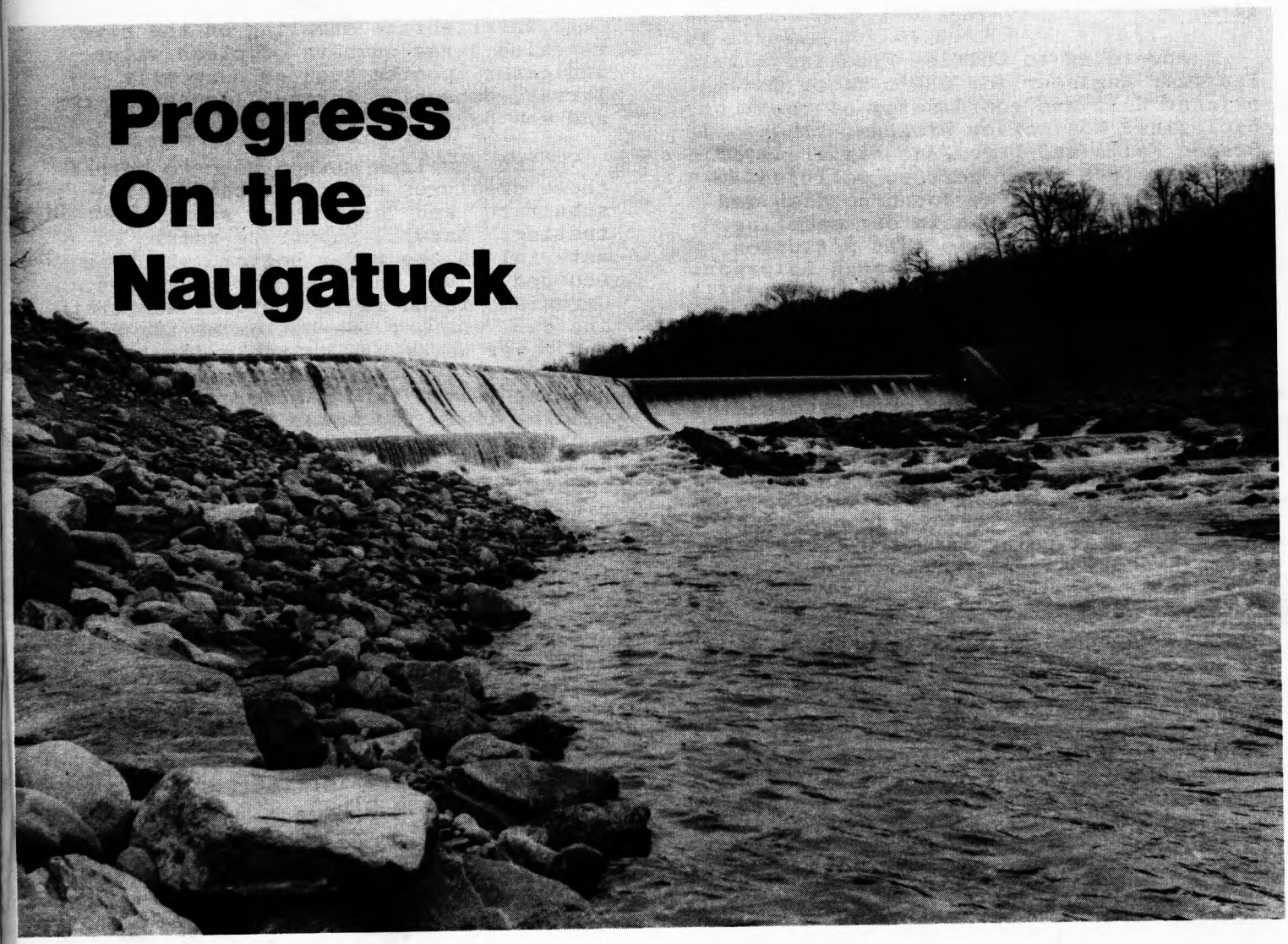


Progress On the Naugatuck

In this issue

Naugatuck River

Significantly Cleaner

What used to be one of the most polluted river segments in Connecticut is now clean enough to support natural populations of fish and water life, according to the results of a biological testing program operated by DEP's Water Compliance Unit and a private consulting firm.

According to Charles Fredette, Sanitary Engineer for DEP's Water Compliance Unit and coordinator of the Biological Monitoring Program, "the Beacon Falls and Derby/Ansonia areas of the Naugatuck River were so polluted that in past years we found no fish and very few insect larvae in our sampling. Recent samples indicate that pollution levels have been lowered enough to permit the survival of these organisms."

This improvement in water quality is a result of the installation of wastewater treatment equipment in industries and the upgrading of sewage treatment plants along the river, according to Fredette. "Since the majority of modern industrial and domestic treatment systems went on line in the early to mid-70's the amount of heavy metals, rubber, and organic wastes going into the river has decreased dramatically," he said.

The Biological Monitoring Program has been conducted three times per year since the summer of 1974 by the DEP in cooperation with Jason M. Cortell, Inc., an environmental consulting firm in Wellesley Hills, Massachusetts. The testing method used is based on determining the kinds and numbers of "indicator species" in the water--organisms with varying tolerances for pollution. Since certain of these species can only live in clean or mildly polluted waters, an increase in their numbers indicates an improvement in water quality.

Fish sampling conducted during the summer of 1975 revealed that smallmouth bass, bluegills, bullheads, killifish and eels were living at Beacon Falls. "Although these fish were small, they were in good condition," Fredette said. "They showed no obvious signs of parasites or disease."

Similar results were also found in samples taken downstream on the river at Ansonia/Derby. "The results are encouraging because these areas have been sampled before without any fish being found," he noted. "We have also received numerous reports from people fishing in Waterbury who have taken smallmouth bass and yellow perch from the river."

Invertebrate sampling on the river revealed large numbers of clean water indicator species such as dragonfly larvae, dobsonfly larvae, leeches, worms and sow bugs.

The sampling method used to detect these creatures entails both "natural substrate" and "artificial substrate" testing. Natural substrate refers to material on the river bottom, which is scooped up and analyzed for organisms. Organisms found in the natural substrate indicate whether the bottom of the river and river water are suitable for life. Artificial substrate testing involves packing leaves into a wire cage, suspending it in the water for a number of months and counting the organisms found among the leaves. Because the artificial substrate makes little contact with the river bottom, organisms found there indicate only what the quality of the water is.

According to Fredette, far more organisms were found in the artificial substrate than in the river bottom sediment. "The river bottom may still be somewhat toxic from past industrial discharges," he explained. "While the water quality has improved it may take several more years for the bottom material to wash clean. We are still finding elevated levels of lead, zinc, and manganese in the bottom mud, and zinc, chromium and cadmium in fish. Surprisingly, the levels in fish are not as high as we would have expected.

"Since damaging discharges have been discontinued we would expect the condition of the river bottom to improve over the years," he added.

Fredette said that although the lower Naugatuck River does not appear clean to the eye, the lowering of pollution levels "is a significant step in improving the river's quality. The industries, towns and individuals who have been involved with wastewater treatment should be gratified by the results."

Fishing Season: April 17, 6:00 A.M.

Fishing season opens 6:00 a.m. Saturday, April 17, and the Fish and Water Life Unit of DEP would like to remind the more than 200,000 licensed fishermen in the state of some fishing laws they should be careful not to violate:

• Don't start fishing before opening day. "Many youngsters start fishing a few days before the actual start of the season," said Cole Wilde, Director of the Fish and Water Life Unit. "We hope parents will discourage them from this unsportsmanlike fishing."

• Observe the creel limits. Bag limits for Connecticut sport fish are:

--bass: minimum length - 12"; daily limit - 6

--pickerel: minimum length - 15"; daily limit - 6

--northern pike: minimum length - 26"; daily limit - 2

--walleye: minimum length - 15"; daily limit - 6

--lake trout: minimum length - 20"; daily limit - 5

--trout: minimum length - none; daily limit - 5

--Atlantic salmon: minimum length - 15"; daily limit - 1

--panfish, carp, suckers, eels, lampreys: minimum length - none; daily limit - no limit

• Know where you fish. Public access to fishing waters is limited to state-owned lands, rights of way designated by posters, or by permission from the landowner. If you are fishing on a stated leased stream you must stay within ten feet of the stream bank.

"Trout fishing usually takes place on private property," Wilde noted. "The angler is a guest of the landowner and should treat him and his property with respect."

• Know what you're doing. Spear fishing is prohibited in all Connecticut lakes and ponds but may be used for carp, eels, suckers and lampreys in sections of streams not stocked with trout. Similarly, bow and arrow fishing is limited to use for carp, eels, lampreys and suckers in lakes or streams not stocked with trout. Crossbows are prohibited. Underwater spear fishing is prohibited in all inland waters of the state.

• Don't litter. Discarding waste, including fish or portions of fish, is illegal and fouls the water for future fishing.

"We hope sportsmen will take full advantage of our natural and stocked fish populations," Wilde said, "while taking care to conserve our wildlife and water resources. If they do we can ensure continuance of the stocking programs and productive fishing in the years ahead."

DEP's trout stocking program

While warm water species such as bass, pickerel, and yellow perch abound in many of our waters, to a large number of our anglers nothing beats fishing for trout. Since the natural production of trout cannot even remotely match fishing pressure, stocking is a necessity.

According to DEP's Fish & Water Life Director Cole Wilde, "Stocking is only one phase of the fisheries management program of the department that includes fish habitat restoration, manipulating fish populations, introducing predaceous warm water fish and providing access areas to fishermen. Combined, these measures help us meet our obligation of providing recreational fishing

(continued on next page)

for the more than two hundred thousand licensed fishermen in the state."

Each year the DEP stocks more than 750,000 adult trout weighing more than 300,000 pounds in the various waters of the state. More than 70 lakes and ponds and 300 streams are included in the stocking program.

Catchable-sized trout are produced in three state hatcheries in Connecticut. The Kensington and Burlington hatcheries have been in operation for 43 and 56 years respectively and produce a total of more than 250,000 trout per year. The Quinnebaug Hatchery is a new, modern installation located in Plainfield and yields two-thirds, or more than 500,000, of our stocked trout. In addition the DEP annually receives 60,000 to 100,000 trout from federal hatcheries operated by the U. S. Fish and Wildlife Service.

About half the trout stocked in Connecticut are released before opening day, with the remainder stocked at various times during the fishing season, according to Wilde. Pre-season trout stocking begins early in March, with the release of fish into lakes and ponds. Rivers and streams are stocked in late March and early April when most of the danger of flooding is over.

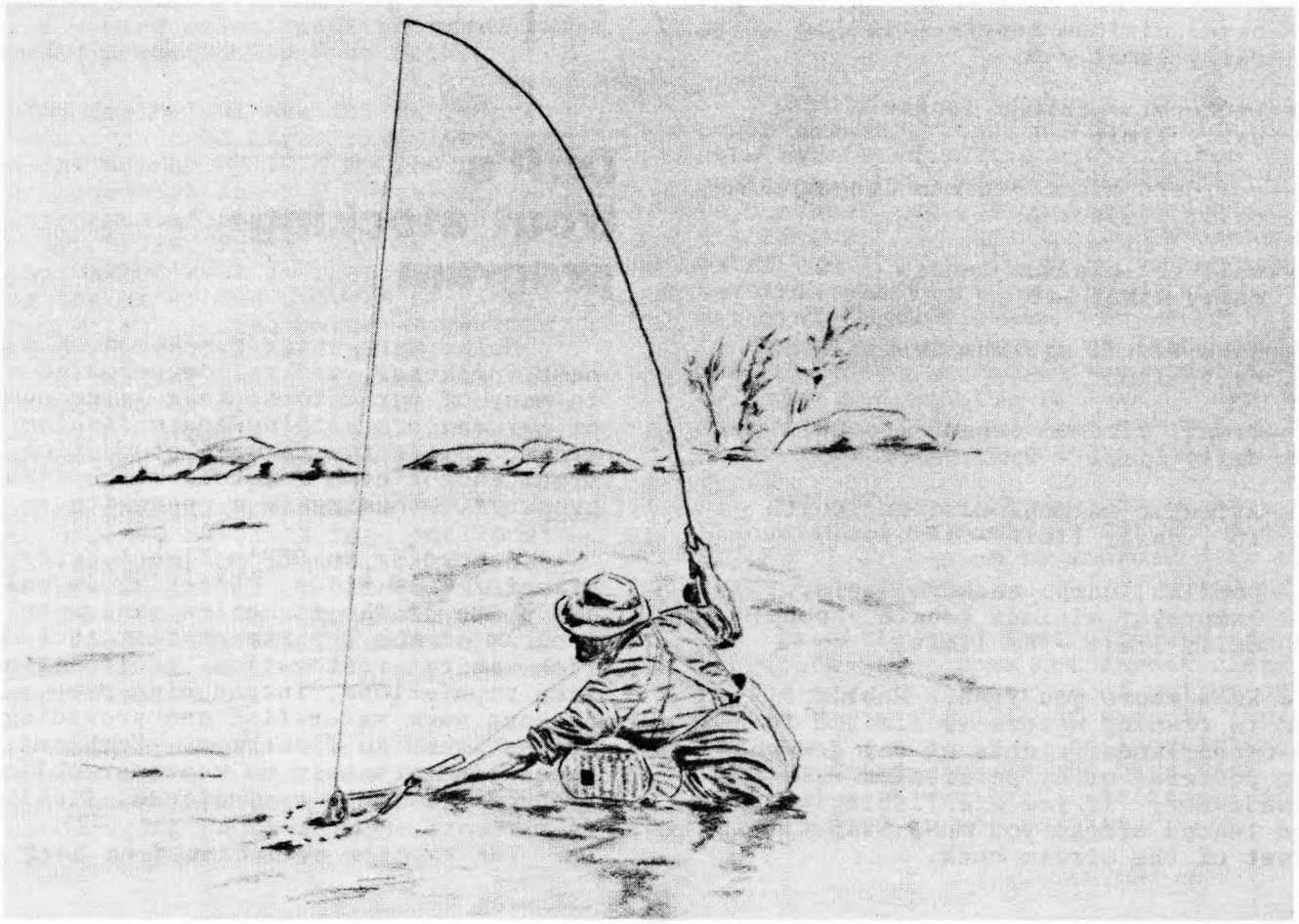
"When we stock we'd like the fish to stay in a particular area," Wilde explained, "and spring floods would displace them."

Trout stocked during the fishing season are released from late April to the end of May. With the exception of the cold-water Farmington River, all stocking is completed by the first of June. Wilde explained that most streams are not cool enough in summer to support new hatchery trout.

"Hatchery water is about 50 degrees fahrenheit," Wilde said, "and new trout would die if forced to suddenly acclimate to warmer stream waters. Released in the spring when stream waters are cool, they can gradually adjust to the warmer summer waters."

According to Wilde, about 60 per cent of the stocked trout in Connecticut are brown trout, with 25 per cent being rainbows and 15 per cent brook trout. "Though the browns are difficult to rear they survive well over the years and provide the best sustained fishing in number and size in Connecticut waters," he said.

"Trout growth in the three state hatcheries has been rapid during the year and our hatcheries have near-record numbers of fish on hand," Wilde noted. "Prospects for the 1976 trout fishing season are excellent."



Restoring the Salmon to Connecticut

by Robert A. Jones, Director, DEP Marine Region
and
Cole W. Wilde, Director, DEP Fish and Water Life Unit

The year was 1798. The first dam on the Connecticut River had just been completed at Turner's Falls, Massachusetts and the early years of the industrial revolution were tolling the death knell for the Atlantic salmon in the Connecticut River.

This once abundant fish, so plentiful that it sold for less than one penny per pound, was blocked by industrial dams from reaching its upstream spawning grounds. Within ten years of the first dam the magnificent Atlantic salmon disappeared from the Connecticut River. Major stocking efforts in the 1870's resulted in the return of salmon to the river, but these successes were short-lived. Heavy harvests of salmon by commercial fishermen and poorly located or non-existent fishways doomed what might have been a successful restoration program.

In 1967, the Connecticut River Anadromous Fisheries Restoration Program was inaugurated, with one of its primary purposes to reestablish fishable runs of Atlantic salmon in the Connecticut River. The new restoration program was a joint effort involving the states of Connecticut, Massachusetts, Vermont and New Hampshire as well as the U. S. Fish and Wildlife Service and the National Marine Fisheries Service. Intensive efforts are now underway to develop a substantial run of Atlantic salmon and to return the American shad runs to their historic abundance and range to areas they reached prior to 1798.

1974 produced the first visual evidence of the success of this salmon restoration program. On July 18, Edward Binke of Middletown, while walking along the bank of the Connecticut River, found a thirty inch, eight pound Atlantic salmon. A brand on the side of the fish identified it as the first known return from smolts stocked in the river in 1972. Since that day, three additional salmon returns have been verified. Hopefully this is just the beginning of a truly successful salmon restoration program.

Connecticut plays a key role in the restoration program, since two high quality tributaries to the Connecticut River, the Farmington and Salmon Rivers, are in the state. With the completion of the new fishway at Rainbow Dam on the Farmington River, this river became the only major tributary in Connecticut suitable for salmon migration. Connecticut will therefore receive a major portion of the salmon smolts from federal and state hatcheries available this spring.

Since 1967 more than a half million young salmon have been stocked in the Connecticut River basin. Although the verified returns as adult fish have been insignificant compared to the numbers stocked, new techniques and expanded facilities should increase the rate of returns.

One such technique is the use of "imprint" or "stockout" ponds, which have been recently constructed adjacent to the Rainbow Dam Fishway on the Farmington River. Imprint ponds help young salmon to survive by reducing the shock that results from being suddenly shifted from a protective hatchery environment to the unprotected river with all its natural hazards. Juvenile salmon are placed in the ponds in mid-March, where they remain until they grow into "smolts," or young salmon adapted to live at sea. When this transformation is complete (usually in April) the direction of water flow in the ponds is reversed, outlet screens are removed, and the young salmon are allowed to choose their own time to start their long migration to the Davis Straights off Greenland. Imprint ponds have already been successfully used in Ireland

(continued on page 16)

DEP Citizens' Bulletin

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Earth Week: April 18-24
Rid Litter Day: April 24
Arbor Day: April 30

Three observances of environmental interest are scheduled for this month. Earth Week will be held from April 18 - 24. Connecticut's Rid Litter Day is scheduled for the last day of Earth Week, April 24, and the traditional Arbor Day will be held on April 30.

Throughout April conservation commissions, beautification committees, schools, environmental groups and youth groups will conduct programs to achieve specific environmental objectives, such as community or stream clean-ups, and to promote general awareness of environmental problems.

This year will mark the seventh annual observance of Earth Week. Sponsored nationally by the Alliance for Environmental Education, Earth Week '76 will feature the theme "The Four E's--Environment, Economics, Energy and Ethics." The Alliance for Environmental Education is an association of more than 25 North American conservation and education organizations, comprising a total membership of more than 11,000,000 people. According to James L. Aldrich, Executive Director of the AEE, the association will distribute more than 20,000 educational Earth Week posters to schools and organizations throughout the country. "We're also trying to arrange a White House proclamation for Earth Week," he said.

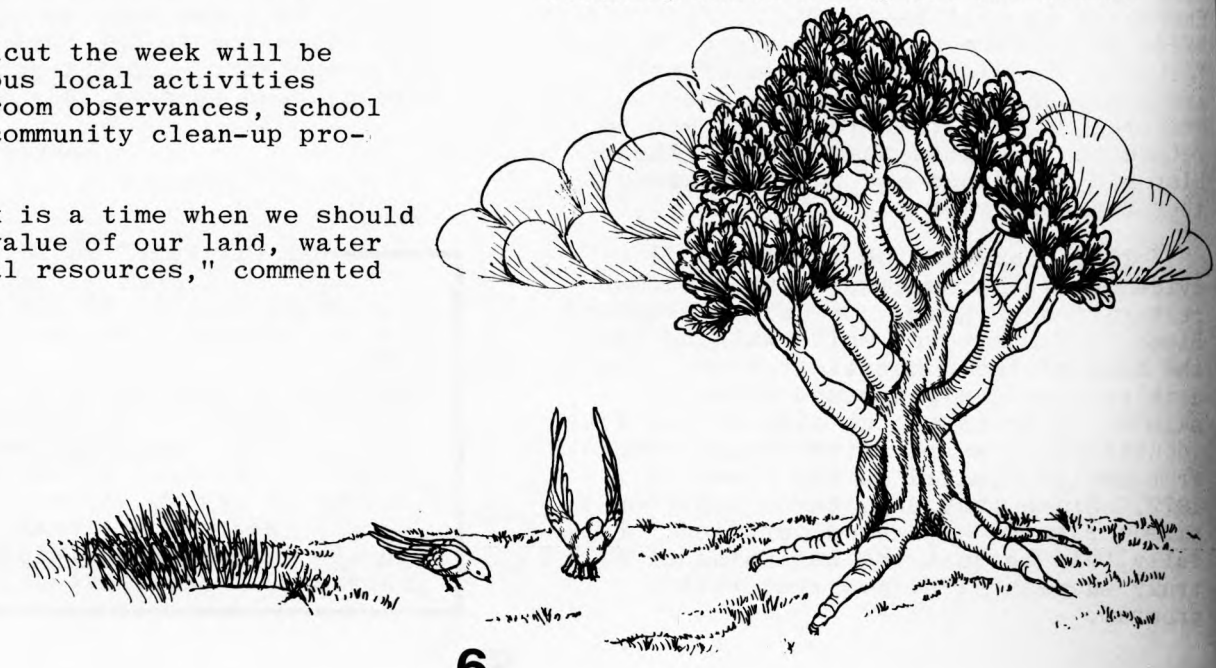
In Connecticut the week will be marked by numerous local activities including classroom observances, school assemblies and community clean-up programs.

"Earth Week is a time when we should reflect on the value of our land, water and other natural resources," commented DEP Commissioner Joseph N. Gill. "While we can be proud of Connecticut's industrial and economic progress we must ensure that this progress does not endanger the state's natural resource heritage."

April 24 is the national Keep America Beautiful Day, which for several years has been observed in Connecticut as Rid Litter Day. Although no formal statewide program is planned for this year, various scout troops will be participating with their communities in local clean-up programs. In the town of Coventry, for example, Girl Scouts, Boy Scouts, 4H clubs and other service organizations will cooperate with the Coventry Beautification Committee to remove litter and promote awareness of the litter and other environmental problems in town.

William Delaney, Chairman of the Connecticut Litter Control Advisory Board remarked that "Litter represents an extremely serious problem and one that is more difficult than most to combat. While the trash removed from roadsides and parks on Rid Litter Day is significant, the educational benefits of increased awareness of litter as a problem are equally if not more important."

Arbor Day, the nation's oldest environmental observance, was first introduced in Nebraska in 1872 because of growing concern about rapid deforestation in many parts of the United States. In 1886 the Connecticut General Assembly set aside the last Friday of April as a time to "give serious thought to the value of trees and forests." This year Arbor Day falls on April 30 and will be observed by community tree plantings and seedling sales throughout the state.



andalism Plagues State Parks

"Lavatory, women's side...smashed t and mirror--sink apparently lifted wall, dropped on floor and smashed. imated damage cost: $150."

This damage report is typical of the ndalism that plagues state parks and sts Connecticut citizens thousands of llars each year. Ranging from afitti to the destruction of signs d light fixtures, to the burning of rk shelters, vandalism is costly and, cording to Parks Unit Director William iller, is getting worse each year.

"Last year vandalism cost us close o $70,000," Miller said, "compared to bout $29,000 the year before. Even hough a large part of last year's costs as from the destruction of a $35,000 ouse, the remaining cost from smaller ncidents was still considerably higher."

The house Miller referred to was the ranger's house at Indian Well State Park, destroyed by an arsonist last October. The house was unoccupied at the time, and no one was injured in the fire. The arsonist was never caught.

Not including the destruction of the Indian Well ranger's house, vandalism of state parks cost Connecticut $33,712.42 last year. Costs were incurred by all state parks: from $20 for outhouses pushed over in James Goodwin Memorial Forest, to more than $7,600 for damage throughout the year at Hammonasset Beach State Park where, according to Miller, "something is always being destroyed."

Highest damage costs were suffered at Hammonasset Beach ($7,669.00) followed by Osborndale State Park ($2,785)and Rocky Neck State Park ($2,614.20). Twelve of Connecticut's 50 state parks suffered damages of over $1,000 each.

Miller said the most common form of vandalism is the destruction of picnic tables. Other forms include breaking doors, outdoor lights, signs, windows and toilets, grafitti and, one of the most costly forms, littering.

Tools and museum pieces are also popular targets. Miller noted that on one occasion vandals broke into Gillette Castle and stole several valuable artifacts. Rangers searching the area the next day found the items in nearby bushes, evidently abandoned in favor of the $1,000 worth of tools stolen from a nearby park maintenance shed. Since then the Castle has been equipped with a burglar alarm connected to local police headquarters.

Vandals not only destroy state property in the parks, but they steal private property as well. According to Miller, the situation for campers in some parks has become "a sad plight. Stoves, coolers, and tents are stolen when campers are away from the site.

"This kind of damage reached its height 4 or 5 years ago. But now that we have a registration procedure at all campsites we know who is on the site, and campground thefts have levelled off. Still," he added, "I would advise campers not to leave their equipment for long periods of time."

Arrest records, said Miller, indicate that the "typical" vandal is between 16 and 23 years old and usually owns or has access to a car. Campground thefts are generally committed by "professionals, somewhat older than ordinary vandals."

Miller concedes that "the number of people arrested is small--infinitesimal compared to the number of incidents we have. So we're going to have to

(continued on page 8)

Nipmuck Trail Opens

Saturday, May 1, will be Nipmuck Trail Day, an event to mark the completion of the Nipmuck Trail from Mansfield Hollow State Park in Mansfield to Bigelow Hollow State Park in Union. The day will be celebrated by a dedication ceremony at the beginning of the trail in Bigelow Hollow State Park and by hikes sponsored by various hiking and outdoor organizations.

The Nipmuck Trail is one of the Connecticut system of blue-blazed trails sponsored by the Connecticut Park and Forest Association, a conservation organization founded in 1895. When the Association's first Connecticut Walk Book was published in 1935 the Nipmuck Trail was in the process of being planned and cut. According to John Hibbard, Secretary of the CPFA and Editor of the Connecticut Walk Book, "the trail was widely used in the thirties and early forties, but fell into a period of disrepair. It is only in the last 10 or 15 years that people have begun to revitalize it."

Revitalizing the trail meant clearing overgrown areas, seeking landowners' permission to extend the trail across their property and extending both the north and south ends of the trail. Most of the recent trailwork was begun in 1967. According to Dr. Samuel Dodd, Chairman of the Nipmuck Trail, "This work was done by great numbers of people, including 4-H clubs, university hiking clubs, scouts and other outdoor groups."

Extending a total of 27.5 miles, the trail now runs from Bigelow Hollow to Mansfield Hollow and includes a spur trail from the Fenton River to Puddin' Lane in Mansfield. Portions of the trail lead through the Natchaug and Yale Forests.

A short section of the Nipmuck Trail in Ashford coincides with the old Connecticut Path, or Great Trail of New England, a path that connected the present day regions of Boston and Hartford. Originally an Indian path, this trail was the route used by Thomas Hooker, the "Father of Connecticut," when he first came to the region that is now Hartford. Extending 225 miles, the trail was the most direct route available, and later served as the first postal route in the United States. Postal riders travelled the route from Boston to Hartford and back once a month.

The dedication ceremony begins at 9:15 a.m. at the Rte. 171 entrance of Bigelow Hollow State Park. Immediately following the ceremony there will be a hike sponsored by the Appalachian Mountain Club and an automobile tour of Yale Forest led by Dr. David Smith, President of the Connecticut Park and Forest Association. Other groups will sponsor additional outdoor activities throughout the day.

Additional information on Nipmuck Trail Day events will be announced in local newspapers.

Vandalism *(cont'd from p.7)*

retrench," he said. "We are relocating personnel and property to more centralized areas of the parks where we can have increased surveillance. Unfortunately for the camper or picnicker, there will be less tables and fireplaces to use in isolated areas."

The state has come up with several "gimmicks," as Miller calls them, to prevent or impede vandalism where property cannot be closely watched. These devices include grafitti-proof paint, a coating that forms a nonporous surface highly resistant to marking, metal barways instead of wooden gates ("They cut through the wood with chain saws," Miller said), and vandal-proof locks. In lavatories the object is "to recess as much as possible," including building hand dryers into walls and replacing levers with buttons wherever possible.

"And those annoying faucets that don't stay on unless you hold down a lever--they're to prevent kids from causing floods by stuffing the drains with tissue and leaving the water running," he added.

Miller appealed to anyone seeing an act of vandalism or "anything suspicious" to report it and to testify if the vandals are caught.

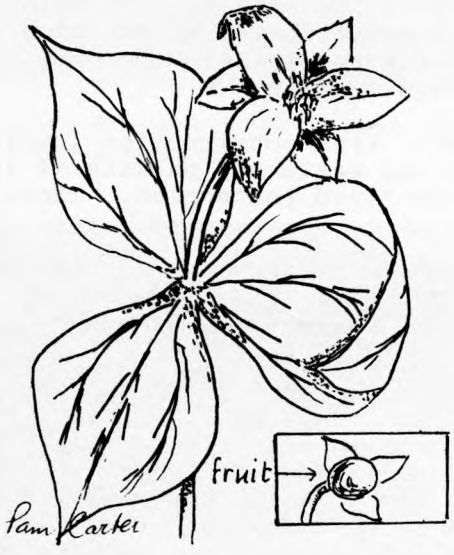
"I'd also appeal to parents to know where their children are," he said. "We could save thousands of dollars if parents and schools would educate the kids not to litter and not to damage property that ultimately will cost the parents money."

Trailside Botanizing

by G. Winston Carter

RED TRILLIUM

(Trillium erectum)



The sounds, odors and sights which stimulate a man's senses in the forest often give greater meaning to a walk in the woods. Quite often the source of the stimuli has to be pointed out to the beginner, or it may be overlooked.

A good example of this is the red or purple trillium which has a long list of common names, among which are Headache Flower and Stinking Benjamin. The plant is well named because a strong, rather unpleasant odor is given off by the blossom. Trillium grows in moist rich woods and can be easily missed. However, carrion flies find it without any trouble and pollinate it. They are evidently attracted to the flower because of its resemblance to the color and odor of rotting flesh.

Trillium is aptly named from the Latin "trilix" (triple), as all of its leaves and flower parts are in threes or multiples of three. Its species name "erectum" describes the position of the flower, which is borne up on a stalk above the leaves. Red trillium blossoms in early spring and continues to flower until June. One of its common names is Wake-Robin, because it sometimes blossoms before the first robin appears. As the flower disappears it forms a red berry which may be an inch across. Although the berry makes man nauseous if eaten, the fruit serves as food for birds and small mammals, which in turn distribute the indigestible seeds.

Indians and the early settlers chewed the dried underground stems as a means of treating diarrhea, snakebite and as an anesthetic, while the root was supposed to have value in the treatment of gangrene and consumption.

CCEEE conference May 20

A one-day conference on current environmental and land use issues will be held May 20 at Southern Connecticut State College, sponsored by the Connecticut Council on Environment and Energy Conservation.

Former DEP Commissioner Douglas M. Costle will keynote the session with an address on "Environmental Protection and Economic Growth: Is there a conflict?" Costle is now serving as Deputy Director of the recently established Congressional Budget Office.

Costle's address will be followed by morning and afternoon workshop sessions, led by state and local officials and representatives from citizen groups.

The morning workshops will include "Analysis of Recent Decisions by Connecticut Courts Concerning the Environmental and Land Use," led by attorneys Russell Brenneman and Thomas Byrne; and "Use of Natural Resource Data in Municipal Land Use Decision-Making," addressed by Richard Hyde of DEP's Natural Resource Center, Environmental Planner Les Corey, and Ellen Frye of the University of Connecticut Cooperative Extension Service.

Afternoon topics will be "Citizen Participation in Environmental Decision-Making," addressed by Roger Seamans, Executive Director of the Farmington River Watershed Association, and Marc Caplan, Director of the Connecticut Citizen Action Group; and "Reasonable Controls for Local Development," led by Mark Barantz, Assistant Town Manager of the Town of Glastonbury, James Malloy, President of Jamestown Real Estate, and Brian O'Neill, Director of Environmental Services for Griswold and Fuss.

The registration fee is $6 and includes lunch. Please send $6 checks payable to "Land Use Conference" to Greg Sharp, I & E Unit, Department of Environmental Protection, 165 Capitol Ave., Hartford, Connecticut 06115.

from the field

by Douglas Starr

There are right ways and wrong ways of doing things. Even with burying garbage.

The right way--compacting and covering the waste in an organized way--minimizes the health hazards associated with garbage disposal and the nuisance caused to the community. Pollution is avoided by keeping the waste separate from ground and surface waters.

The wrong way makes the site attractive to rats and other vermin, contributes to air and water pollution, creates fire hazards and is a neighborhood eyesore. It is also illegal.

DEP sanitary engineers regularly inspect Connecticut's 159 landfill operations to ensure compliance with state landfill regulations and, through them, safe operation of the landfill sites. Sanitary engineer Tom Pregman showed me two operations that did not comply with proper landfill practices.

The first site we looked at was a bulky waste disposal area in Southern Connecticut. Bulky wastes are materials such as demolition debris, wood, concrete and other materials too large to be buried at municipal landfill sites. Since bulky wastes are relatively clean, requirements for their disposal are not as extensive as those for the disposal of domestic garbage.

Site #1: Before.

"We don't require bulky wastes to be covered with dirt each day as with domestic wastes," Pregman said. "Once per week is enough. But we do require that the material be kept away from surface waters and above the local water table. We also require using a cell-type construction to minimize fire hazards and to keep the operation organized and clean."

"Cell" type construction involves crushing the waste and packing it into large dirt-lined rectangles. These cells may be as large as 80 feet long by 50 feet wide by ten feet high. As each cell is filled, the bulldozer operator covers it with dirt, packs it down, and begins a new cell next to it. In this way the waste is compacted to a minimum area and buried in a neat and orderly way.

Site #1: After. Disposal cell wall is chalked out and part of cell wall has been built.

The site we visited was two weeks old. Problems arose early from the operator's inexperience in managing landfill operations. The middle of the 40-acre dirt lot was covered with crushed wood and rubble from building demolition.

"You should have seen it a week ago," Pregman said. "A pile may be ten, fifteen feet high. They just brought the stuff into the middle and dumped it."

In the week since Pregman's previous visit the operator had bulldozed the pile and crushed the debris into the ground. But waste disposal was still not done in an organized fashion, and

Site #2: Uncovered trash tumbles into a swamp.

in one area debris was lying in an area of pooled water.

Pregman explained to the operator the cell method of operation, telling him to build a dirt rectangle around the waste that was already there. "For your next cell, start in the far corner instead of in the middle of the property," he said. "This will prolong the life of your fill area and meanwhile your trucks won't be driving over debris."

A week later the problem was on its way to being corrected. The operator had chalked out a waste disposal cell and had built one of the cell walls. He also promised to remove the debris from the standing water as soon as the water level dropped.

"It's easier this way," Pregman remarked. "Instead of citing them for a violation and dragging it through court we come down and spend a few hours explaining how to operate. If they still don't comply then we can use the violation procedure.

"I'll be back in a month to see the operation again," he added.

The second site was one where the violation procedure had been used. According to Pregman, "the case is now dragging through the courts. DEP ordered the site closed a year ago and the town is still appealing the order."

Waste deposited at the 90-acre municipal landfill site consisted of all the household goods that people throw out: paper, glass, metal and food wastes, commonly known as garbage. Since garbage contributes to the spread of pests and disease, municipal landfill operations must be especially clean. Waste should be crushed and buried each day, packed into organized cells and kept separate from ground and surface waters. Fences should be erected to catch wind-blown litter and the grounds should be policed at the end of each day.

These conditions were not met.

Garbage taken to this site was simply trucked to the area and dumped. Exposed cardboard tubes, old chairs, bottles, cans and newspapers indicated that the garbage had not been crushed or covered at the end of the day. Other snow-covered, untended piles had not been buried the previous day either. Pieces of cardboard and paper swirled in the wind and the ground felt springy from layers of uncompacted waste below.

"You may find some rat prints if you look carefully in the snow," Pregman said.

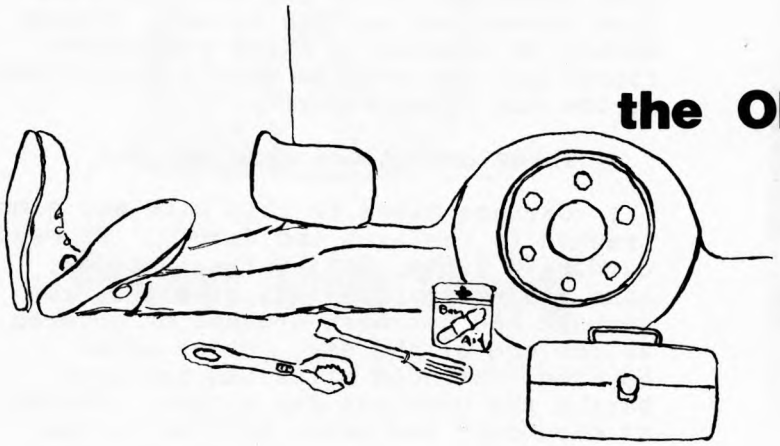
Bordering one side of the landfill is a swamp, the other side of which is a lawn leading to an elementary school. Ten foot high piles of garbage lined the swamp and sloped down into its water, which eventually ran out to the beach of a nearby state park.

"It's hard to believe that a community would operate this way," Pregman said. "We've ordered them to find another site or tie in to resource recovery but they're resisting the change. Changing sites is expensive and the town is having money problems.

"There's no hope of correcting the situation here," he added. "They'll just have to cover it and use a landfill elsewhere."

Sanitary landfills can minimize the health and environmental hazards caused to a community by garbage disposal. When finally filled, the disposal area can be used as a golf course, parking lot, park, open space, or other light-use area. It just has to be done right.

Site #2: Piled high.



the Old Oil Dilemma:

What do you do with it when you're through?

Economy-minded, you decide to change the crankcase oil yourself. So you crawl under the engine, drain out the old oil and pour in the new. Then you wonder what to do with the old oil.

You're an environmentally concerned citizen and know enough not to let the stuff run down a storm drain and into a lake or stream. So you pour it into a Clorox bottle and set it out with the trash, bury it, or spread the oil over the ground to be broken down by bacteria before it can do any harm. Right?

Wrong.

The oil that comes out of your car contains about 5% lead and lesser amounts of other heavy metals dissolved from the engine. And though some of the hydrocarbons may be broken down by bacteria, the most toxic part--the lead and heavy metals--seeps into the ground to contaminate the ground water or to wash into surface waters. The amount you spill may be infinitesimal, but according to the U. S. Environmental Protection Agency, only one part per million is enough to make water undrinkable.

Over 6 million gallons of waste crankcase oil are generated each year in Connecticut, according to a 1971 study on waste oil disposal by the General Electric Company. Prior to 1968 much of this oil was processed by the once profitable oil reclamation industry, which reclaimed used oil and sold it as cheap crankcrase oil. But in 1968 the federal government put a tax of between 4 and 6 cents per gallon on reclaimed oil, eliminating that industry's profit. From 1966 to 1971 the number of oil reprocessing operations in the United States dropped from 125 to 50.

According to Bill Hegener, an engineer for the Oil and Hazardous Materials Section of DEP's Water Compliance Unit, "for a period of four years no one would take even large quantities of used oil. Gas stations would either give it to towns to spread over roads for dust control or dump it behind the premises."

After the oil embargo of 1973, waste oil collection once again became marginal, if not profitable, and firms now pay up to 6 cents per gallon for used oil. Since 1974 the Department of Motor Vehicles has required every service station in Connecticut to have a 250 gallon holding tank to keep used oil until one of the 60-odd licensed collecting firms in the state picks it up to sell to a reprocessing plant.

"We've also worked for several years with towns and construction firms to discourage them from dumping oil on the ground for dust control," Hegener said.

Noting the improved situation at gas stations, construction sites and roads, Hegener said, "the worst offender for dumping waste oil is now the do-it-yourselfer."

So there you are with four quarts of used oil in a Clorox bottle. What do you do?

You might try taking it to your local gas station, but it had best belong to a friend. Hegener said that "some station owners may take it, but check before you go there."

We checked with Charles Matties, past president of the Connecticut Gasoline Retailers Association, now a member of the Board of Directors and a state representative, and asked him if he thought station owners would be willing to accept waste oil.

"It's really not worth our time and money," Matties said. "The market changes from month to month, and it is not profitable for us to accept people's oil. Sometimes we've had to pay to get our own oil taken away.

"There's also a lot of unhappiness among retailers about losing their oil changing business," he added. "Oil companies are selling oil to discount stores at prices so low that we can't undersell them. So are we going to increase our losses by accepting waste oil from people who buy at the discount stores?"

Matties did say that gas station owners are "upset about the number of people who dump their oil," and that the idea of getting retailers to accept waste oil "might sell, but not based on economics. You would have to appeal to their civic nature," he said.

Another possibility is a nearby recycling center or landfill. Several Connecticut municipalities, with DEP assistance, now maintain oil collection tanks at their landfill areas. There are seven that Hegener knows about, located in Andover, Barkhamsted, Danbury, East Lyme, Manchester, New Milford and Norwich.

"There may be others in the state," Hegener noted, "since some towns were operating collection centers before DEP got involved. I'd suggest that people call their town to see if there is an oil collection tank nearby."

Hegener describes the oil collection at landfill sites as "a pilot project--one we hope will expand to other towns if they find it economical to buy and maintain the holding tanks."

Hegener admits that it may be more troublesome to find an agreeable gas station owner or locate a suitable disposal site than to simply dump the old oil. In some cases, he said, it may be easier just to take the car to a gas station and pay to have the oil changed.

"But if you do change your own oil," he said, "it is worth the effort to prevent the water contamination associated with waste oil disposal. As with all recycling efforts, it boils down to the household. People have to be conscientious enough to do it."

Solar energy course

A 5-day course entitled "Solar Energy for Buildings" will be offered by the Hartford Graduate Center from June 14 - 18 in Hartford. Designed for professional architects, builders, consultants, engineers, building managers and educators, the course will provide the background necessary for the design of solar heating systems for buildings.

This year will be the fifth offering of the Solar Energy Course by the Hartford Graduate Center. Lectures will emphasize the design of solar heating components and systems and review the techniques for evaluating performance claims of existing systems. By completion of the course, through concurrently assigned problems, students will design and evaluate a solar heating system. It is assumed that students will be familiar with algebra, trigonometry and physics before entering the course.

After reviewing the fundamentals of heat transfer, students will learn how to predict energy requirements of buildings and to estimate how much energy is available from the sun at a given season and location. They will also review solar collector construction and performance in order to wisely choose which commercial collector is most applicable to their needs. Methods for making economic analysis to determine optimum collector area and heat storage volume will also be discussed.

The course begins on June 14 and will run for five days, from 9:00 a.m. to 5:00 p.m. The course fee is $250. Register by phone (549-3600) or by mail at the Hartford Graduate Center, 275 Windsor Street, Hartford, Conn. 06120.

Connecticut Forest Fire Control: 1910–1942

by Charles F. Snyder
DEP Fire Control Officer

Part II of a three-part series.

By 1910 Connecticut's landscape was in the process of reverting back from farm to woodland. We had over 1,331,000 acres of woodland which represented about 42% of our total land area. Our thousands of small farms could not compete with the larger operations in other states and when farmers stopped working the fields, new native hardwood and softwood trees quickly converted the fields to forests.

At that time we had a town forest fire warden system, but it was not very effective. Communication was inefficient and many fires went unchecked for a day before the warden was informed and suppression action was taken. In 1910 over 47,000 acres of woodland were burned, with the average size of the fires being 50 acres.

During the decade 1910-1920 our forest fire lookout station network was begun and was expanded. One experimental station was located in a home on Bald Hill in Union, and worked out so well that the State Forester had a tower constructed on the roof of his cabin to aid in locating forest fires. By 1920 there were four operating lookout towers in the state, located in Bristol, Norfolk, Storrs and Union.

In addition to the observers in these towers, a number of towns, forest protective associations and private individuals were on the lookout for fires. When smoke was seen the nearest forest fire warden was quickly notified. Among the locations used in the 20's for spotting fires were the Traveler's Tower in Hartford, Talcott Mountain, High Rock, Beacon Falls, Sunset Hill in Hampton, Bryce's Cabin in Bristol, Bluff Head in Guilford, Yale Tower in Union and Tart Hill in Groton.

An early firefighting truck, c. 1935. A production car modified with spare parts, it was equipped with a 165 gallon water tank, a small motor-driven pump and 500 feet of linen hose.

New regulations at the time also aided our firefighting efforts. One of the most important of these was a law passed in 1921 that made the State Forest Fire Warden responsible for all fire warden appointments, making them free from town politics. Rule changes in the 20's allowed fire wardens to provide food and water at state expense to firefighters on active duty at a fire. Previously the men had to pay for the food themselves.

One lesson our personnel learned early was the value of adapting someone else's ideas and equipment to our fire control effort. In 1922 we acquired, through the Highway Department, a supply of shovels, axes, lanterns, and two army pumps that were mounted on wheels. We bought army surplus vehicles and converted them to our first fire trucks. We also obtained army surplus pumps, weather bureau assistance in predicting fire danger, more efficient hand tools and, best of all, an efficient state organization with excellent cooperation from local fire departments.

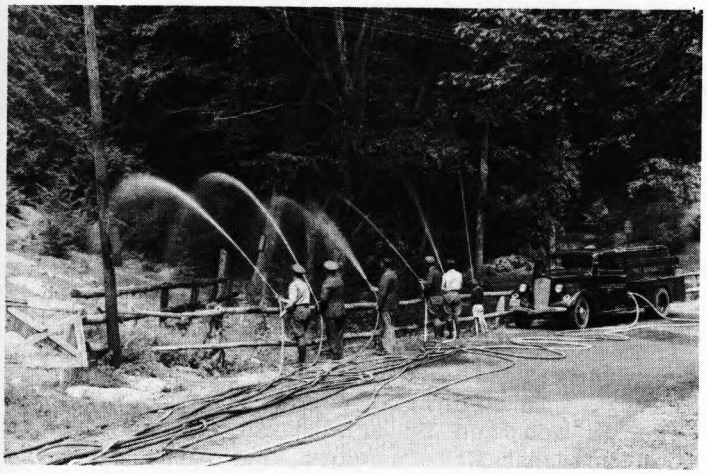
It is difficult for us to realize the conditions that existed in those days. Milton Stocking, Connecticut's Western District Supervisor at the time, had one of the two power pumps that the state owned and, as a result, his crew was constantly being called to fires outside his immediate area. The narrow roads of the day were always a problem and the weekend sightseeing traffic meant traveling at a snail's pace to get to a fire.

From the late 20's to the early 30's we acquired more portable pumps, more forest fire towers, and a cadre of professionals. By 1929, for the first time, burned forest area was reduced to less than 1% of the total forest area of the state.

In the memoirs of our late State Forester, Austin Hawes, he emphasizes

one terrible day in 1930 in which eight fires burned simultaneously throughout the state.

On May 30, 1930, all the conditions for a fire disaster were present: low humidity, high winds and extremely dry ground cover. Two fires swept into Kent from New York that day, and a third started in Salisbury and moved to New York and Southwestern Massachusetts. Three more fires burned throughout the center of Connecticut and another started in Voluntown and moved to Rhode Island. By the end of the two-day fire period 16,530 acres of forest in Connecticut had burned, with losses of 7,950 acres in New York, 5,500 acres in Rhode Island and 3,000 acres in Massachusetts.



Demonstration of firefighting apparatus, c.1937.

George Douglass of our Land Management Unit, who was in the Voluntown fire, said that by the end of the fire period there was nothing left but a gray ash in places where forest had been. Today you can still see indications of where this fire burned. In Patchaug State Forest there are areas in which no trees date before 1930 and where the stumps of the previous, burned-down trees can still be seen.

In March of 1933 the Civilian Conservation Corps program was authorized. All State Foresters, together with officials from the U. S. Forest Service and the U. S. Park Service, were called to Washington for instructions on the new program. Connecticut State Forester Austin Hawes and the foresters from two other states were appointed to advise President Roosevelt on how best to administer the program. They suggested that the CCC work camps be administered by the U. S. Army and that the State Foresters be responsible for the actual work projects.

The CCC camps in Connecticut operated between 1933 and 1941, and the work they accomplished is still benefiting Connecticut citizens. They developed road systems in our forests and parks, carried out forest improvement and areas, and were trained as forest fire fighters.

Each camp had a 10 man "hot shot" crew that was immediately available to respond to any forest fire. The fire truck they used was usually a stake-bodied truck that had a 300 gallon tank with a small transmission pump, 1-1/2" diameter linen hose and a supply of hand tools. These forces gave us a good start and sufficient manpower to stop or slow most forest fires.

On the afternoon of September 21, 1938, Connecticut and most of New England was hit by a tropical hurricane. Though the center of the storm stuck just west of New Haven, the rotational movement of the storm resulted in stronger winds in the eastern part of the state causing damage to many forest areas. Pure stands of conifers suffered most, especially those with large trees.

This widespread destruction created a great deal of interest in the forest fire problem. As a result money was appropriated for, among other items, the installation of two-way radio communications in lookout towers and cars. Two-way communication was satisfactory up to a radius of 20 miles, and was occasionally heard much further. While these first sets used "AM" frequencies instead of the modern short-wave bands, they showed us what could be accomplished with good radio communications for dispatching and for fire line operations.

(continued on next page)

Women's firefighting brigade, c. 1942.

During World War II we were handicapped by a lack of youthful manpower because of the war. Fortunately, we lost only 10,000 acres of forest in 1942 and had only five fires that burned over 100 acres. Three of the five were over 1,000 acres and occurred in Voluntown (1,723 acres), Groton (1,648 acres) and Sterling (1,515 acres).

The Sterling fire was unusually disastrous. Costing more than $8,000 to put out, it was the most expensive fire in state history.

The fire was set by an incendiarist who was evidently knowledgeable of forest fires. On April 30, 1942 fires began simultaneously at several places in Sterling, and burned for six days. By the time it was declared out the fire had burned 1,515 acres of woods in Connecticut and more than 10,000 acres in Rhode Island. The incendiarist was eventually caught and sent to prison.

We cannot pass the period without making a special mention of Austin Hawes. Mr. Hawes was the Connecticut State Forester from 1904-1909 and 1921 to 1944. He was a man of extraordinary capacity and ability to get the difficult jobs accomplished. He was known and respected for his forestry and forest fire knowledge not only in Connecticut, but on a nationwide basis. His frequent trips to other parts of the nation to view other operations helped him to keep our operations among the best in the country. During his 40-year tenure in office we were always considered among the forerunners of our field. He was one of the best products of his era and will always be remembered for his work in Connecticut forestry and forest fire operations.

Restoring the Salmon

(cont'd. from p.5)

and Sweden, where they have increased the numbers of returning adult salmon.

Slightly more than 71,000 juvenile salmon will be stocked in the spring of 1976, all but 9,000 of these in the Farmington River. Approximately half the young salmon will be stocked in the imprint ponds and the remainder directly released into the river below the Rainbow Dam. Most of these fish were hatched and reared in national fish hatcheries at Pittsford, Vermont and Berkshire, Massachusetts. Connecticut and Massachusetts state hatcheries contribute smaller numbers of young salmon.

A major problem encountered by biologists has been the difficulty in adequately sampling the Connecticut River for returning fish. Although numerous unauthenticated reports of salmon catches have been received, biologists have been unable to capture any returning adult salmon in the lower river. The new Rainbow Dam Fishway on the Farmington and the Holyoke Fishway on the Connecticut River in Massachusetts are both equipped with fish trapping facilities, and will make it possible to capture all returning salmon that pass through the facilities.

Another major problem is that the only sources for Atlantic salmon eggs are from rivers in Quebec, the Maritime Provinces and Maine. These rivers are all located hundreds of miles from the Connecticut River, and smolts reared from eggs from these rivers are not genetically adapted to the Connecticut River. In order to rebuild a stock of salmon adapted to conditons in the Connecticut River, eggs are obtained from rivers as close to Connecticut as possible and from rivers which bear a close similarity to the Connecticut River. It is hoped that eventually it will be possible to build up a Connecticut River stock from fish returning to the river.

It is imperative that as many salmon smolts as possible reach the sea. Unfortunately many do not leave the streams where they are stocked until early May. By this time they have started their heavy feeding activity and as a result are easily caught by anglers. These smolts are less than the 15-inch legal length for Atlantic salmon, and must be released. Unfortunately these small salmon are very delicate and even if carefully released, many will die.

Successful restoration of the Atlantic salmon in the Connecticut River will be a long and difficult task. A start has been made and a few fish have returned to the river. Hopefully in time Connecticut anglers will have the opportunity to fish for this magnificent game fish without making the long journey to Canada.

Conservation Commission Corner

CACC ANNUAL MEETING On May 22 Fairfield will host the annual meeting of the Connecticut Association of Conservation Commissions. The meeting will begin at 11:00 a.m. at the Oldfield School, Sullivan Place, Fairfield.

A feature of this year's meeting will be the opportunity to hear Fairfield Conservation Director Thomas Steinke discuss Fairfield's plans to restore a tidal marsh in that town. After a review of the techniques the town plans to use, participants will be given a guided tour of the marsh the town plans to restore.

Non-commission members as well as members are invited to the meeting, so please come and bring your family. Everyone is asked to bring sandwiches.

INLAND WETLANDS WORKSHOPS A series of five Inland Wetlands Workshops has been scheduled for late April through June 1. The workshops will be jointly held by the Soil and Water Conservation Districts, the Cooperative Extension Service and the Department of Environmental Protection.

The purpose of the program will be to update municipal agencies on the status of all aspects of Connecticut's Inland Wetlands program. Other topics will include the role of the Army Corps of Engineers in wetland regulation and the advantages and disadvantages of local wetland regulation to communities which have not yet established local inland wetland agencies.

The workshop schedule is as follows:

April 27 Tolland & Windham Counties
Bishop Center, UConn campus
7:30 to 9 p.m.
Coordinator: Don Francis
(774-9601)

May 4 New London & Middlesex Counties
New London Agricultural Center
562 New London Turnpike, Norwich
Coordinator: Russell Hibbard (887-1608)

May 11 Litchfield County
Litchfield Agricultural Center, Litchfield
Coordinator: Lee Debes
(567-9447)

May 11 Fairfield and New Haven Counties
Fairfield Extension Center, Bethel
Coordinator: Howard Kemmerer
(748-3523)

June 1 Hartford County
Cooperative Extension Service
Carriage House
1280 Asylum Ave., Hartford
Coordinator: Fred Nelson
(236-6151)

Members of wetland agencies, community officials and the general public are invited to attend any of the inland wetland workshops.

CROMWELL The Cromwell Conservation Commission is planning its second annual Ecology Fair for May 1 at Northwest School on Coles Road in Cromwell. The theme of the fair will be "Heritage and Horizons" and activities will include site projects in which the entrants improve the appearance and quality of a piece of land. The site will be visited by the judges the week before the fair, and "before and after" pictures of the sites will be taken for a fair display.

Other entries will include recycling projects, studies in the use and conservation of energy and studies of pollution effects and controls for land, air and water. The fair sounds like a good way to create more awareness in the community on the programs which are being developed at the local level. For further information write to the Cromwell Conservation Commission, 5 West Street, Cromwell.

MAILING SUGGESTIONS The recent mailings for the Workshop Meeting once again brought up the problem of mailing lists. As you know there is nothing so frustrating as having mail returned marked "not known" or "no forwarding address," and this occurs after every mailing. One group which seems to have licked this problem is the land trusts, most of which have P. O. boxes.

If conservation commissions use a post office box they can avoid problems which may arise from chairmanship changes, vacations or illness. Your town may have a mail room or other system whereby mail can be held for the commission and a standardized address can be used.

DEP Calendar

Public Hearings
April-May, 1976

Air Compliance

April 26, 1976 - 2:30 p.m.
Room 221, State Office Building
165 Capitol Avenue
Hartford, Connecticut 06115

Purpose: To appeal a state order requiring installation of hydrocarbon emission control equipment.

Carlton Press
Division Street
Derby, Connecticut

April 27, 1976 - 1:30 p.m.
Room 221, State Office Building
165 Capitol Avenue
Hartford, Connecticut 06115

Purpose: To amend Section 19-508-24 of the Regulations of Connecticut State Agencies to make Connecticut air quality standards consistent with the National Ambient Air Quality Standards.

State of Connecticut - DEP

April 30, 1976 - 9:30 a.m.
Room 161, State Office Building
165 Capitol Avenue
Hartford, Connecticut 06115

Purpose: To request a variance from Section 19-508-4 of the Regulations of Connecticut State Agencies to allow the company to operate equipment without a smoke density recorder.

Hain Bros., Inc., The Plainville Casting Company, and the Ohio Rubber Company

Water Resources

May 5, 1976 - 10:00 a.m.
Room 221, State Office Building
165 Capitol Avenue
Hartford, Connecticut 06115

Purpose: To request a permit to place 80 cubic yards of porous material in an area 20 feet in diameter by 2 feet deep within the established bounds of a wetland.

Hermenze Bros., Inc.
P. O. Box 423
Westport, Connecticut

May 6, 1976 - 10:00 a.m.
Room 221, State Office Building
165 Capitol Avenue
Hartford, Connecticut 06115

Purpose: To request a permit to maintain an existing unlicensed fill within the established bounds of the wetlands.

Eileen Pisano
c/o Leonard Surveyors
29 Westport Avenue
Norwalk, Connecticut 06851

Water Compliance

April 21, 1976 - 10:00 a.m.
Room 1
122 Washington Street
Hartford, Connecticut 06115

Purpose: To request a permit to discharge 2700 gallons per day of poultry feedwater to the groundwaters in the town of Franklin.

Colchester Egg Farms, Inc.
Route 32
North Franklin, Conn.

Permits Issued
March, 1976

Air Compliance

March 1
Donnelly, Sons & Co.
Permit to operate three offset printing press dryers.

March 1
Temple Street Association
Permit to construct a thermo-pak natural gas-fired boiler at the Temple Street Medical Center, 200 George St., New Haven.

March 1
Dow Chemical, Allyn's Point Plant
Permit to construct two marlotherm heaters with North American burners.

Water Resources

March 3
Herbert Camp
Permit to repair a dam on Lake Mamanasco.

March 4
Miamogue Yacht Club
Permit to construct and maintain 500 feet of floats as extension to existing floats.

March 4
Clinton Harbor Marina
Permit to construct and maintain planks and runways.

March 5
City of Norwalk
Permit to construct a storm sewer, outfall channel, and headwall at Norwalk Harbor.

March 5
Peter Secondi
Permit to construct a pier at Gulf Pond in Milford.

March 9
Frank Cuddy
Permit to construct, install, and maintain a ramp, a float, and mooring piles in Stamford Harbor.

March 11
Housatonic River Marina
Permit to construct 2 piers, riprap, additional floats.

March 12
Unionville Water Co.
Permit to place fill to above flood elevation and construct a building and gravel drive on the Farmington River.

March 16
Maurice Hoffman
Permit to retain and maintain 60 linear feet of pile and timber bulkhead in Pine Creek.

March 18
Town of Watertown
Permit for emergency stream restoration on Steele Brook.

March 22
Pasquale Cecio
Permit to construct and maintain a pier, ramp, and float and also to dredge an area around the float in the Byram River.

March 22
Thomas Beckwith
Permit to modify existing boat basin for permanently moored ferry boat for use as a restaurant.

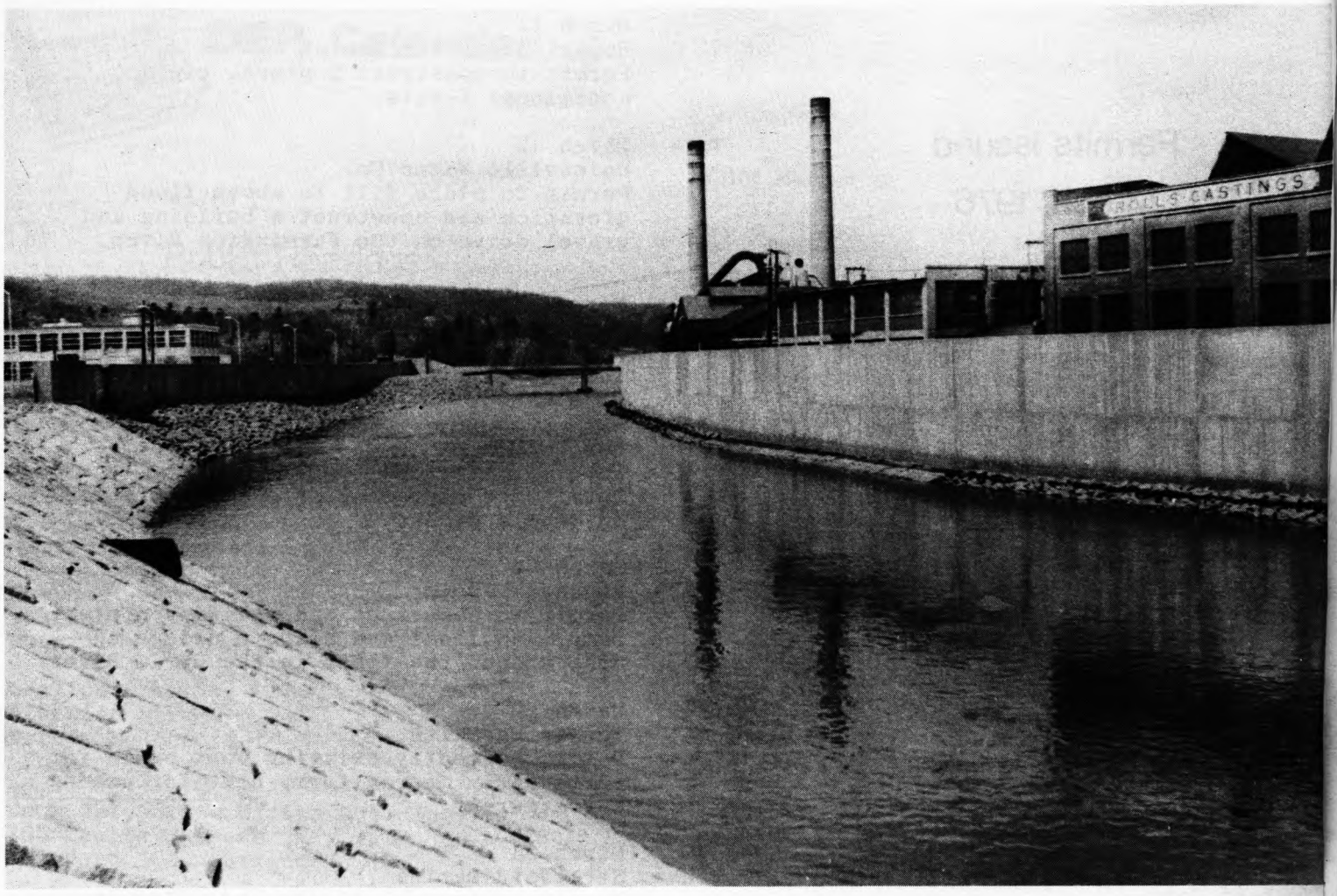
March 24
Stratford Marina
Permit to install floats and piles in the Housatonic River at Stratford.

March 24
George Darling
Permit to place, install and maintain a pair of telephone cables between East and West - Cut-in-Two Islands in Long Island Sound at Branford.

March 25
John Dolan
Permit to dredge in the Naugatuck River.

March 25
City of Waterbury
Permit to perform work on Steele Brook as part of a flood control restoration program.

March 31
Town of Watertown
Permit for emergency stream restoration on Steele Brook.



DEP citizens' bulletin

State of Connecticut
Department of Environmental Protection
State Office Building
Hartford, Connecticut 06115

Commissioner: Joseph N. Gill
Director, Info & Ed: Greg Sharp
Editor: Douglas Starr
Illustrator: Deborah Dumin

Phone: 566-5524

Cover photos by Greg Sharp.

front: Naugatuck River Impoundment Dam, Seymour, Connecticut.

back: Naugatuck River at Derby/ Ansonia, Connecticut.

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